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Soybean Digest



28,000 IOWANS TALK PROTEIN
SOYBEANS IN VICTORY DINNER
SOYBEAN OIL IN WARTIME ECONOMY
OCTOBER CROP REPORT

OCT 27 1942

Official Publication

OF

THE AMERICAN SOYBEAN ASSOCIATION

VOLUME 2 • NUMBER 12



OCTOBER • 1942

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THE Soybean Digest

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OCTOBER ☆ 1942

No. 12

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Most Vital Victory

By CLAUDE R. WICKARD

Secretary of Agriculture
Via Radio

THE most vital victory on the farm front has been the huge increase in oil crops, offsetting the loss of 1 billion pounds of vegetable oil imports shut off by war in the South Pacific. The great food and raw material weakness of the Axis is lack of fats. If we can keep a good balance of these vital substances, as we have done this year, it will count heavily for an eventual victory.



Sec. Wickard
U.S.D.A. Photo by Purdy

Yesterday afternoon I experienced one of the most satisfying moments of my life. It came when I put my name to the September crop report. The figures in that report showed that American farmers this year are smashing all past records for crop production.

The figures in the crop report mean just one thing — that we have achieved a tremendous victory over the Axis on the food front. In the countries held by the Nazis, food production is falling. In the United States, food production is hitting an all-time record that we did not hope for even a month ago. American farmers this year are winning the battle of production over their Axis foes.

Let's look at the production figures for the oil crops. That was where the greatest increases were needed. When the Japanese struck in the Far East last winter, they cut off our sources of more than a billion pounds of oil. At the time it seemed almost impossible to make up those losses through bigger production here at home. But farmers buckled down to the task of trying to make them up. And they have succeeded. In a single year they have doubled production of peanuts and soybeans. This year they will raise nearly 3 billion pounds of peanuts and well over 200 million bushels of soybeans. Cottonseed production is about a third above last year's. Production of flaxseed will be more than 42 million bushels, about a quarter more than last year. Not only will there be more oil but there will be more meal for livestock feed. Farmers have more than replaced the lost imports from the Orient. That record is proof of how farmers directed production — 100 percent increases in two major oil crops.

You notice that I am not claiming that we have won the whole battle yet — not even this year. We still face the heavy task of harvesting the big crops of corn, cotton, soybeans and other late crops. We still have to transport and store and process them. This year, with the general scarcity of labor and critical materials none of these jobs is going to be easy. But I believe that the job can be done, and that it will be done if we use all of our determination and energy and ingenuity.

MARKET SUMMARY

SOYBEANS			
	Oct. 9	Sept. 24	Sept. 10
October	1.62½	1.67½	1.70
December	1.66½	1.68½	1.71½

SOYBEAN OIL			
	Oct. 3	Sept. 24	Sept. 5
Tanks, Midwest Mills.....	11½	11¼ B	11¼

SOYBEAN MEAL			
	Oct. 8	Sept. 24	Sept. 9
October	36.25 B	34.50 B	34.00 @
December	33.75 B	33.50 B	33.00 @
			34.00

The bean market continued inactive with new crop beans beginning to appear Oct. 1. Meal market firm with old stocks depleted and demand very good for new crop. There was considerable trading in new crop soybean oil with both old and new bringing ceiling prices the last of the month.

STANDARD SHORTENING SHIPMENTS

By Members of Institute of Shortening Mfgs., Inc.

Week ending Sept. 5.....	14,175,172
Week ending Sept. 12.....	14,022,648
Week ending Sept. 19.....	17,985,340
Week ending Sept. 26.....	17,336,068

SOYBEAN INSPECTIONS

A total of 288 car lots of soybeans were inspected under the Grain Standards Act at markets in states where licensed grain inspectors are located during the period August 16-31. Included were: Illinois 221, Indiana 12, Iowa 22, Missouri 2, and Ohio 31.

September 1-15 soybean inspections for the same area totaled 231 cars, as follows: Illinois 156, Indiana 16, Iowa 6, Missouri 6, and Ohio 47.

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COMPARABLE PRICE

Secretary of Agriculture Claude R. Wickard has announced comparable prices for 17 agricultural commodities including soybeans, under the Emergency Price Control Act. These prices were determined as a result of the hearing on comparable prices which the Department conducted at St. Louis, Missouri, August 24 to 28.

The new comparable price for soybeans, as of August 15, is \$1.46 per bushel, as compared with a previous parity price of \$1.44. Base price is set at \$.96. Average price received during the 1941-42 season is \$1.55.

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SOYBEANS IN LEND-LEASE

Total purchases of soybean products for lend-lease shipment by the Agricultural Marketing Administration during August totaled \$431,300, bringing the cumulative total of such purchases to \$3,503,654. August purchases included 3,360,000 pounds of soy flour and 6,720,000 pounds of grits. This is in addition to soup mixtures containing soybeans, and to edible oils which contained soybean oil. During August 4,047,000 pounds of margarine, 18,742,500 pounds of salad oil and 7,630,940 pounds of shortening at a total value of \$4,266,295, were bought for lend-lease.

— s b d —

THE OIL CROP PROSPECTS

If September 1 indications are borne out, the potential output of oil from the 1942 harvest of cottonseed, soybean, peanut and flaxseed crops, will be about 4,400 million pounds, compared with about 2,600 million pounds from the 1941 harvest, according to the Bureau of Agricultural Economics in a September 21 report (before the unseasonal late September frosts in the Middlewest).

But with a production of soybeans in the North Central States greatly in excess of the annual crushing capacity of mills in the region, actual production of oil from the four crops during the crop year 1942-43 may not exceed 4 billion pounds, in the B. A. E.'s opinion.

On this basis, production of fats and oils from domestic materials in the 1942-43 crop year probably will total close to 12 billion pounds, over 2 billion more than in 1941-42. This increase would be about sufficient to offset increases in lend-lease exports and decreases in imports.

— s b d —

A new paint now used for camouflage is made from soybean protein, and is similar to casein paint.

— s b d —

199,000 pounds of soybean glue are being used in the world's biggest prefabricating job — 5000 homes for war workers at Portsmouth, Va., under contract with the Federal Public Housing Authority.

OCTOBER, 1942

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SOYBEAN OIL MEAL IN POULTRY FEEDING

By C. W. CARRICK

Department of Poultry Husbandry
Agricultural Experiment Station
Purdue University

THE principal quantitative nutritional need of poultry is energy, and in this section yellow corn has nearly always supplied more economical energy than any other feed. Another nutritional need of practical importance for poultry is protein, and soybean oil meal now supplies that need in the most economical form. The practical problem then is to supplement corn and soybean oil meal with minerals and vitamins and to determine quantitative relationship of these feeds and supplements which are most efficient biologically and economically. It is this problem which now engages much of our effort in poultry nutrition research at this institution.

There has long been, and still is, much confusion in the interpretation of experimental work concerning the relative value of vegetable and animal proteins. We are convinced, so far as the protein of soybean oil meal is concerned, that the evidence from chemical determinations, from metabolism studies and from suitable feeding trial justifies the conclusion that soybean oil meal, when properly processed, supplies proteins of high quality; and for practical purposes it can compete favorably with the protein from animal products in supplementing the protein of corn.

B-Complex

There are certain factors in the vitamin B complex which are just as necessary for growth, egg production and hatchability as are some of the amino acids in the protein. Some animal products supply some of these vitamins, which are inadequately supplied by soybean oil meal and corn. In many of the feeding trials with poultry no corrections were made for the missing vitamins, so soybean oil meal, and other vegetable proteins were reported as supplying poor quality proteins, while the better results

notely that just as good results in egg production and hatchability could be obtained with a soybean-grain ration, with mineral supplements, as from a ration with animal products as the principal protein supplement, when both rations were fed to fowls having access to good pasturage. The pasturage supplied the vitamins present in the animal products, but inadequately supplied by the soybean oil meal.

Furthermore, work at the Wisconsin Agricultural Experiment Station in which casein and riboflavin were added to basal rations with soybean oil meal indicates very definitely that soybean oil meal protein is satisfactory for hatchability when the vitamin factors are supplied. Recent experiments at Purdue demonstrate definitely that soybean oil meal, corn, and alfalfa leaf meal supply adequate protein for high egg production and that their ration with either pasturage or 2.5 per cent of liver meal gives high hatchability. The small amount of protein in the liver meal could hardly be responsible for the increased hatchability in view of the known vitamin content of this product.

Riboflavin

In work with young chicks at this Station, rations in which the protein was supplied by corn, soybean oil meal, and alfalfa leaf meal, gave adequate growth only when supplemented with riboflavin, nicotinic acid and choline. When any of these were omitted the growth rate was reduced.

Furthermore, this type of ration in which 5 per cent of alcohol extracted meat and bone scraps was included gave inadequate growth. The same result was obtained when extracted casein (a high quality animal protein) was included; when unextracted meat and bone scraps was included in the ration the growth rate was increased, and when 5 per cent each of wheat bran and middlings were included in addition to the meat scraps and a milk vitamin concentrate, the growth rate was adequate and somewhat greater than when 5 per cent of dried skim milk and 5 per cent of meat and bone scraps were included in the ration.



C. W. CARRICK

in the combination in which we used these feeds. These factors appear to be riboflavin, choline, and possibly pantothenic acid and nicotinic acid.

Choline Deficiency

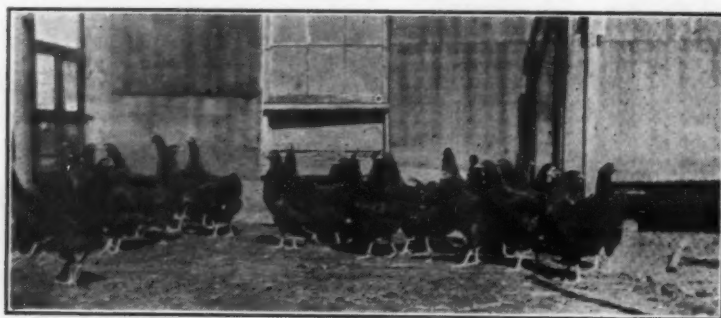
Soybean oil meal, in the amounts we have used, has been shown to be a satisfactory source of what appears to be a new growth factor which has recently been found at this Station to be present in casein, yeast, liver meal, milk products and distillers' dried solubles. There is some evidence that wheat or wheat byproducts contain one or more growth factor in which corn and soybean oil meal are deficient. Whether this factor is one already known we are unable to say at this time.

In the absence of pasturage, it is still good practice to use a small amount of meat or milk products or both in growing or breeding rations made up largely of corn and soybean oil meal, but we may regard them primarily as vitamin supplements, when considerable soybean oil meal is used for protein.

No doubt some of you were surprised by the results with choline in rations containing soybean oil meal (some of them 34 per cent). So were we, because experiments at the California Experiment Station indicated that 25 to 30 per cent of soybean oil meal in chick rations was adequate to prevent slipped tendons, so far as choline was concerned. In our experiments with chicks no slipped tendons were apparent, during the 8 weeks of observation, in either the lots with or without the choline additions. Possibly processes or other factors affect the amount or the availability of the choline in soybean oil meal; or possibly the presence or absence of other nutritional factors in the ration may influence the utilization of choline. We do know that 5 per cent of meat and bone scraps in our ration corrected the choline deficiency.

There was a time when mineral deficiencies were the reason for poor results from vegetable protein feeds in comparison with

(Continued on page 11)



The Problem Is Vitamins, Not Proteins

from the animal products were erroneously interpreted as due to better proteins. Actually some of these animal products have protein of lower biological value than the protein in soybean oil meal. Much of the credit given to animal protein should be given to the vitamins that occur in the animal feeds, such as meat scraps, fish scraps and various milk products.

The early experiments reported by Philips and Hauge demonstrated very defi-

We shall not go into further detail concerning this controversy between animal protein and vitamins. In the light of the evidence submitted there seems to be little reason to continue to believe that animal protein per se is necessary to get satisfactory growth, egg production or hatchability. It is obvious that both meat and milk products contain certain factors of the vitamin B complex not supplied adequately by soybean oil meal, corn, and alfalfa leaf meal,

**Educating the
Public to**

FEED MORE PROTEIN

28,000 in Iowa Talk it Up



Group of Iowa Grain and Feed dealers at "Feed-More-Protein" Meeting in Cedar Rapids.

AT a time when the promotion of soybean oilmeal consumption is one of the big problems confronting the industry, two well conceived and organized educational campaigns are being carried out.

The first, through cooperation between three organizations and Iowa State College extension service, is a statewide "Feed More Protein" campaign being staged in Iowa. The second, by McMillen Feed Mills, Fort Wayne, Ind., through its 70-odd territorial representatives, covers a larger region of several states.

There are some similarities in the two plans, since each stages two series of meetings, one with grain and feed dealers, and the other with farmers.

The first campaign was sponsored by a committee chairmanned by A. F. Leathers, manager of Swift & Company's Des Moines soybean mill, and representing Western Grain & Feed Association, Farmers Grain Dealers Association and American Soybean Association, in cooperation with the state college.

Dealers' Meetings

Five highly successful dealers' meetings were held at centrally located Iowa cities the first week in September, with a total attendance of well over 500. The fact that these were 7 o'clock dinner meetings may have helped to bring up the attendance.

Such well known Iowa feeding authorities as Rex Beresford, extension livestock specialist, Professor C. Y. Cannon, head of the Dairy Cattle Husbandry Department, and Professor H. L. Wilcke, head of the Poultry Husbandry Department of the college, talked on the grain and feed supply situation and the steps necessary to preserve adequate and balanced livestock rations, with special reference to soybean oilmeal as a protein supplement.

These dinners were followed by county-wide farmer meetings put on by the state extension service, with a farmer in each township assuming leadership for his township. Grain and feed dealers were asked to sit in on the meetings in their own localities in order to promote a thorough discussion of the wartime feed problems from all angles.

Those attending the county meetings each in turn will relay the information until it is presented at neighborhood meetings for each 4-square-mile area by a corps of 28,000 Iowa men and women volunteer educational co-operators helping in the farm war program.

McMillen Plan

The McMillen plan is a series of quarterly meetings with individual dealers and their organizations, and quarterly meetings with farmers and feeders.

In the dealer meetings, the representative will lecture on every phase of livestock feeding, balanced rations, protein concentrates and nutrition generally. Prior to certain feeding seasons, he will narrow his talks down to the problems, for example, of feeding dairy cattle for the highest milk and butterfat production; or feeding laying hens for the highest egg production.

The dealer and his staff will be given helpful information on correct mixing methods where commercial concentrates are mixed with the farmer's own grains.

The territory man and the dealer, acting in cooperation, will then conduct meetings with local farmers and feeders. These will cover all phases of feeding and management, and will emphasize scientific balance.

Both in the dealer meetings and the meetings with the feeders, the talks will be illustrated by charts and sound slide films, and each meeting will be closed with an open forum discussion in which any specific problem may be taken up and solved.

Each quarter, the dealers will receive an eight-page publication, "The Master Mixer" dealing in detail with all the material covered in the dealer meetings. Feeders and farmers will receive their own quarterly bulletin, "The Master Feeder," supplementing the information given in the lectures and films.

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CRACKED BEANS

If soybeans crack during combining, the Allis-Chalmers people suggest that operators look for some of the following causes:

1. Not enough clearance between cylinder and concave.
2. Too many concave bars.
3. Cylinder speed too high.
4. Uneven clearance across the full width of cylinder between shelling plate and concave.
5. Loose elevator chains.
6. Returning too many threshed beans to the cylinder caused by improper sieve adjustment or wrong size finishing sieve.
7. Sieve in return elevator with openings too small, causing too many threshed beans to return to the cylinder.

— s b d —

Of special interest to visitors at the Dairy Cattle Congress, Waterloo, Iowa, Sept. 7-13, was the Iowa Department of Agriculture's soybean exhibit, arranged by O. N. Lafollette, state grain and feed inspector. The display included some 40 soy products, all the way from oil and meal to soy coffee and plastics. A guessing contest on the number of soybeans in a coconut was won by D. E. Wilkinson, Bristow, Iowa. His guess of 3670 was within 22 of the correct number of beans in the nut. Other winners were Harley Helvig, Iowa Falls, Iowa, and Howard Kroul, Solon, Iowa.

Marcy Gottle, left, advertising manager for McMillen Feed Mills, and John H. Boll, account executive, look over displays used in McMillen campaign.



Soybean Oil in the War Time Economy

By D. J. BUNNELL

Vice-President Central Soya Company
Chicago, Illinois

ASSURANCE of an adequate supply of edible fats and oils is one of the corner-stones upon which we must build victory. The area of the most abundant source of oil bearing fruits, seeds, and nuts is a belt three-hundred miles wide girdling the earth's surface at the equator. This zone is the natural habitat of the oil palm, the coco palm and other oil bearing vegetation. In this tropical climate the oil bearing content is most prolific — as high as 68 per cent in the case of copra. The greater distance away from the equator, the less adapted are climate and soil to the natural production of oil bearing seeds. In the temperate zone oil bearing seeds become smaller and the relative oil yield of the seed itself decreases. It is natural that the big, industrial countries of the world would concentrate and draw heavily upon this tropical girdle for oil supplies.

Oil in Germany

We are now drawn into the most destructive, the most ruthless, and the biggest war



D. J. BUNNELL

man has ever known. We know that Germany has planned, and prepared, for this war over a period of years. Let us look to see how these master planners tried to put their oil household in order. To a much larger degree than ourselves, Germany was an oil deficient nation. She could not even approach producing, within her own boundaries, oil supplies that would be denied her in the case of war. We find definite evidence that she took twofold action to prepare for the time when she would be cut

off from world trade. A definite program was instituted to build stock-piles, and plans were made to increase oil production within her zone of influence. In 1937 Germany imported 21½ million bushels of soybeans, from Manchuria, compared to 16 million bushels in 1936. She increased her purchases of copra 145 million pounds over the year before. Despite the fact that England tried to prevent Germany obtaining supplies of whale oil, she stepped up imports 20 million pounds, and by her well known method of "peaceful" persuasion, greatly added to her supplies of whale oil by buying the hydrogenated product from Holland and Norway. This product stored well and had the additional advantage of not being reflected in the world import oil statistics. Indications of stock-piling were first apparent in 1937. The activity progressively increased right up to the start of the war in 1939. After extensive experiments, Germany found her soil was not adapted to large production of oil bearing seeds. Her best potential source of new supply was from corn growing countries within her zone of influence in southeastern Europe. The Ministry of Agriculture in Germany worked out a plan by which Bulgaria and Roumania were guaranteed 10 per cent better return per acre, independent of results, if they would put corn acres into beans. The results were not large, yet several million bushels of beans were grown to add to her oil supply. During the present growing season, soybeans have been planted in the conquered territory of the Ukraine. The extent of the acreage has been limited to the available seed supply. Germany also has used every effort to increase acreage of flax and rape in the countries adjacent to the Baltic sea. Supplies of oils were good when war started — it had been planned that way.

Fish Oil Cut Off

We are a peaceful nation — we pride ourselves on accomplishments that better the individual. During peace times we have never thought in terms of war. What was the condition of our oil household on that Pearl Harbor date, December 7th? Let us review some of the world events that led to the situation we found ourselves in at that time.

In the spring of 1940, Germany invaded Norway. Overnight, there was shut off from the United States annual imports of 60 to 70 million pounds of oil. Our annual purchases of fish and fish-liver oil from Norway and other Baltic countries amounted to this figure. Of this figure, cod-liver oil was the major item.

Months later military operations were extended into Southern Europe and spread over the entire Mediterranean basin. Again we were denied large imports of another important oil. From Spain, Southern France, Italy and Greece we had been taking approximately 100 million pounds of olive oil. As long as the theater of war was confined to Europe, we were not seriously handicapped. Total oil imports had amounted to 1½ to 2 billion pounds annually. We had been denied the source of about 10 per cent of our imports.

The picture changed abruptly when Japan invaded the Philippines and the South Pacific. This area had been furnishing us well over one billion pounds of oil annu-

ally — coconut oil from the Philippines, palm and palm-kernel oil from Netherlands East Indies and Malaya, tung oil from China and perilla oil from Japan, and other less known oils. While we had adequate stocks of these various oils stored in this country to supply us for a short period of time, we were faced with the threat of severe shortages in months to come. To aggravate this situation, our domestic consumption had increased in 1941 to almost 11 billion pounds from 9.7 billion in 1940.

Factors that influenced the domestic supply were only a part of the situation. When Germany attacked Russia, in 1941, she attacked a large nation that was almost self-sustaining. After months of bitter fighting, Russia had lost her most productive agricultural territory — the Ukraine was her breadbasket and the main source of vegetable oils. Russia is in urgent need for her ability to supply a vast population with food has been seriously handicapped. In addition to military supplies, we have in recent months been shipping some vegetable oil and foodstuffs to Russia. Her need is growing greater each week. We must keep Russia supplied if she is to continue the splendid fight against Germany. All this problem of supply had to be added to what we were already doing for England and the other United Nations under the Lend-Lease Act. Suddenly we awakened to the fact that we had to be the world's largest exporter of oils for the duration of the war.

Recognize Crisis

Government officials in Washington recognized we had reached a crisis in regard to future oil supplies. Our domestic production had to be sharply increased if shortages were to be avoided. Quick, decisive action had to be taken. The situation was put up to the American farmer — he was asked to increase, heavily, his acreage of peanuts, flax and especially soybeans. The result was very gratifying. The peanut acreage was doubled, and flax production increased 33-1/3 per cent. The prospective soybean crop for this year is now estimated at 211 million bushels compared to 106 million bushels raised a year ago. This increase is almost enough to offset the losses. It is true we are going to have to substitute one oil for another, but oils are very interchangeable in their uses, and this can be done. The tremendous production capacity of American agriculture has stepped in and filled the gap. This year we will have beans available to produce more than 1 billion 500 million pounds of soybean oil. This figure about equals our total oil imports of a few years ago. It is 15 per cent of our all-time-high consumption of fats and oils established in 1941.

The problem of peace and the feeding of starving populations will come as an aftermath of this war. Social changes are in the making. We look to a better world where standards of living will be raised. An enlightened, victorious China will never be satisfied to go back to the pre-war standard of living. It is not impossible to envision a new China that will consume most of the soybean oil raised in the far East. Peace time needs of soybean oil in Europe, always large before the war, can then be met by America. Here is a new challenge to growers and processors — an emergency measure started in war times can easily result into a permanent export market that will increase the farmers' income in future generations.

— s b d —

Soybean hay can be fed profitably to all kinds of livestock. It makes an excellent winter ration for young cattle, sheep, horses and mules and may be used to good advantage for hogs and poultry.

SOYBEAN OIL MEAL

In War-Time Emergency

By LYMAN PECK

Soybean Nutritional Research Council
Chicago, Ill.

WE all know the primary reason why our government requested a huge increase in soybean acreage. We must have the soybean oil to replace oils and fats previously imported and no longer obtainable because of the war.

Our farmers patriotically responded, and by far the largest crop we ever produced will soon be ready for harvesting. We can produce a larger crop next year and each succeeding year, if necessary, to whip Hitler and Hirohito.

In order to produce this vast amount of oil it is necessary to have adequate facilities to process the soybeans and extract the oil. The processing industry has marshaled its forces and stands ready to do its part in this phase of the war effort.

When soybeans are processed, we make three basic products out of one: soybean oil, soybean oil meal, and soy flour. A few months ago the problem arose as to how we were going to utilize this greatly increased supply of soybean oil meal, and this was the subject of considerable discussion and some apprehension on the part of both government officials and processors. However, the situation has pretty well righted itself now, and before the end of 1943 we may be concerned with whether we have enough soybean oil meal to produce the required amounts of those vital foods — meat, milk, and eggs. There are many reasons for this conclusion:

We have a decreased supply of tankage and meat scraps because we imported large quantities of these commodities from Argentina, and these have dwindled to practically nothing. The fact that we have a big increase in the hog crop is not sufficient because we only obtain about 6 or 7 pounds of tankage from a 200-pound hog, and that is not anywhere near enough to balance the grain to produce another.

Higher Protein Rations

Supplies of fish meal have also decreased as a result of the war. The Navy has taken some of the boats for mine-sweepers and patrol boats; and submarine activities have materially curtailed fishing.

Dried milk supplies have increased, but the large bulk of this material is being used for food for our armed forces and for lend-lease. All this results in a serious decrease in our supplies of animal protein concentrates.

There has been a tremendous increase in the production of soy flour which is being used in dehydrated soups, sausage, and other foods for the armed forces and lend-lease. The more soy flour produced, the less the supply of soybean oil meal for livestock food.

Experimental data proves that more protein in the rations of growing pigs, fattening lambs, and young cattle is economical because it reduces the amount of feed required to make 100 pounds of gain.

The price ratio between vegetable protein concentrates and grain is more favorable than it was, and this fact, plus the efficiency of high protein feeds, will increase the de-

mand for soybean oil meal. Many of these points have been graphically portrayed in an article entitled — "More Meat, Milk, and Eggs for War" which was prepared by the U. S. Department of Agriculture and published in the September issue of Country Gentleman on page 16.

****"The beliefs that feeding some animal protein to growing chickens is essential and that only small amounts of soybean oil meal should be fed to poultry, are about to be shattered by investigations by State and Federal Experiment Stations and by commercial feed manufacturers. These investigations indicate that although animal protein is desirable, it is not essential, and that 30-40% or more of the total ration can be soybean oil meal."

****"From the standpoint of price, efficient production, and the increasing wartime demand for livestock products, farmers should use more high protein feeds this year."

Those of you who have not studied this article should do so at the first opportunity.

Now, more than ever before, the research work of the Agricultural Colleges and Experiment Stations and the commercial feed manufacturers is of utmost importance. The members of the Soybean Nutritional Research Council have had a most excellent opportunity to observe the close cooperation between the Agricultural Colleges and Experiment Stations and the commercial food manufacturers in matters of research. Feed manufacturers carefully watch the basic research in nutrition at these stations and then take their results back to their own laboratories and experimental farms and make practical application of them.

You growers, more than ever before, should appreciate what the commercial feed manufacturers are doing to meet this situation. They are, by far, the largest users of soybean oil meal. In their research laboratories and on their experimental farms they have carefully studied how to use soybean oil meal to the best advantage for making balanced rations.

A Word of Warning

About 20 years ago right here at Purdue University and at the United States Department of Agriculture Laboratory at Indianapolis, research chemists working with chickens discovered that adding minerals to soybean oil meal practically doubled its feeding value when compared to meat scrap. As Dr. R. W. Bethke of the Ohio Agricultural Experiment Station has pointed out, "these experiments were the foundation of all the work that has been done on vegetable protein concentrates for poultry feeding and also gave impetus to the mineral question, because up to that time it had been generally supposed that the only reason meat scraps or tankage were added to a ration was for their protein content. We know better now. Protein concentrates of animal origin not only supply protein but also essential minerals which are not contained in sufficient quantities in vegetable protein concentrates and grain."

But there are other factors that must be considered. A gradual change has been taking place in some of these animal protein concentrates during the past 20 years. New uses have been found for certain gland-

ular products that used to go into meat scraps and tankage, and because of this, these products do not have the same feeding value they had 20 years ago.

We are constantly learning more about vitamins and what happens when a deficiency of any of these important substances occurs in the rations of our poultry, pigs, and other livestock. Regardless of the change previously referred to, protein concentrates of animal origin, as produced today, contain more vitamins and minerals than soybean oil meal. Therefore, when



LYMAN PECK

soybean oil meal is used to replace animal proteins, the problem is not only one of making up the difference in minerals, but is further complicated by the necessity of making up the difference in amino acids and vitamins.

No one realizes this any better than the commercial feed manufacturers. Day and night their research workers have toiled to solve these problems. . . . Problems that have to be solved because they must make feeds that will produce meat, milk, and eggs more economically than can be done with home-mixed rations. The tremendous development of the commercial feed industry stands as ample proof of their success.

Feed mixers without experimental facilities should keep in touch with the Agricultural Colleges and Experiment Stations to obtain information on how to properly supplement soybean oil meal when using it to replace animal protein. There is plenty of experimental data to prove that when properly supplemented, soybean oil meal can be used as the main source of protein with excellent results.

Processing

Research work supported by soybean processors and feed manufacturers many years ago revealed the fact that carefully controlled heat during processing greatly influenced the feeding value of soybean oil meal. Later experiments have definitely confirmed this early work.

(Continued on page 12)



FROM
FARM STORAGE

WE PLEDGE OUR

Processors

ARCHER-DANIELS-MIDLAND COMPANY
Chicago, Ill. — Toledo, Ohio — Buffalo, N. Y.
Milwaukee, Wisc. — Minneapolis, Minn.

SOY BEAN PROCESSING COMPANY
Waterloo, Iowa

I. F. LAUCKS, Inc.
Portsmouth, Va.

ROSE CITY COTTON OIL MILL
Little Rock, Ark.

CAIRO MEAL and CAKE COMPANY
Cairo, Ill.

DECATUR SOY PRODUCTS COMPANY
Decatur, Ill.

CLINTON COMPANY
Clinton, Iowa

A. E. STALEY MFG. COMPANY
Decatur, Ill. — Painesville, Ohio

ILLINOIS SOY PRODUCTS CO.
Springfield, Ill.

SIMONSEN SOYBEAN MILL
Quimby, Iowa

STANDARD SOY BEAN MILLS
Centerville, Iowa

SPENCER KELLOGG AND SONS, INC.
Buffalo, N. Y. — Des Moines, Iowa
Decatur, Ill. — Chicago, Ill.

FUNK BROS. SEED CO.
Bloomington, Ill.

SOYA PROCESSING CO.
Wooster, Ohio

DANNEN GRAIN and MILLING COMPANY
St. Joseph, Mo.

SWIFT & COMPANY SOYBEAN MILLS

HOOSIER SOYBEAN MILLS, Inc.
Marion, Ind.

Grain Dealers

BALDWIN ELEVATOR COMPANY
Decatur, Ill.

J. ROACH SONS, Inc.
Plainfield, Iowa

STOCKDALE & MAACK CO.
Estherville, Iowa

OWENSBORO GRAIN COMPANY
Owensboro, Ky.

FEDERAL-NORTH IOWA GRAIN CO.
Cedar Rapids, Iowa

LOWELL HOIT & CO.
Chicago, Ill.

THE SOYBEAN STRU IN THE MIGHTY DI

FROM its most abundant crop
a river of oil and trains of soy
fighting forces . . . and a mount
the superior protein concentrat
livestock and poultry and

We, the Growers . . . in the forward
the government's call by tilling ne
will harvest the giant crop to the l
of help and machinery. And four
selves to provide utmost in farm sto
marketing movement, and to withhold
higher moisture may be given first

We, the Grain Handlers . . . have di
past and will do so this year, provid
fair treatment alike to all. We ple
the full success of the program

We, the Carriers . . . straining und
strive to clear the way for the soy
stock rolling to the end that gets m

We, the Processors . . . pledge ours
our great plants-sounding continuou
around the calendar, save for break
so that the rich, life-giving produc
neled to our workers, to our lighte
the seas.

Thus does the industry — a
unit — direct this pledge to
Secretary of Agriculture . . . an
anticipates continued unstated
of all governmenta

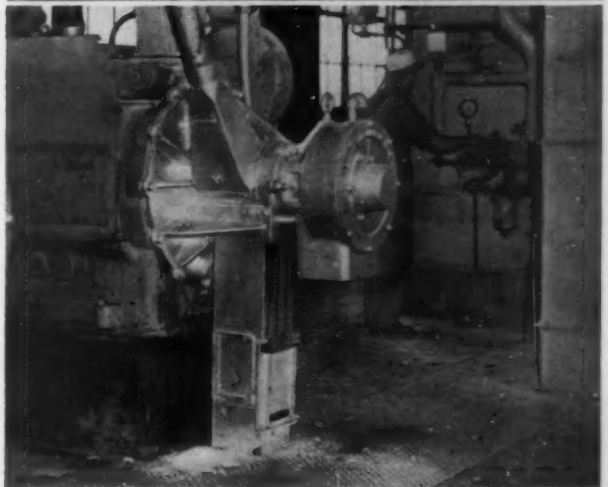
GOVERNMENT



TO THE ELEVATOR



TO THE
PROCESSING MILL



BACK TO THE
FARM FEED LOT
AS HIGH QUALITY
SOYBEAN
OIL MEAL



STRUTS THE STAGE CITY DRAMA OF WAR

...dant crop in history will soon flow
ins of soy flour to help feed the
d a mountain of soybean oil meal,
concentrate, to swell production of
oultry and butter and eggs.

the forward sweep to victory answered
y tilling new far-flung stretches. We
rop to the last bushel despite shortage
And to our government we pledge our
t in farm storage to facilitate a smooth
d to withhold the drier soys so those of
given first right of way.

... have discharged our duties in the
year, providing maximum storage with
all. We pledge ourselves to fight for
rogram

training under wartime demands, will
for the soybean, and to keep rolling
that gets may be avoided.

pledge ourselves to keep the drone of
ng continuously around the clock and
ve for breakdowns or acts of God . . .
ving products may be quickly chan-
our fighters, and to our Allies across

try - a solid, patriotic, fighting
ledge to the President and the
re . . . and in return confidently
united cooperation on the part
ernmental divisions.

EARLY FREEZES CUT ESTIMATES

UNSEASONABLE freezes the last week in September impelled the U. S. Department of Agriculture to revise its September 1 soybean crop estimate downward from 211,452,000 bushels to 200,701,000 as of October 1.

From northern Iowa and Illinois northward into the Dakotas, Minnesota and Wisconsin, the damage was reported to be severe.

C. C. C. Ruling on Green Beans

Unprecedented September freezes have left the soybean industry with a brand new problem that for the moment overshadows all others. What are we going to do with the green, immature beans that are coming to market?

There have been no provisions under government contracts for purchase or storage of sample grade beans.

Just as the Digest is going to press, we received word that Commodity Credit Corporation has established a market price for beans of over 8 per cent damage. Following is the contents of a telegram sent to the Iowa Agricultural Conservation Committee:

"Soybeans containing in excess of 8 per cent total damage, any part of which damage is due to frost, and not in excess of 14 per cent moisture, but which otherwise grade No. 4 or better, which do not contain damage because of causes other than frost in excess of 8 per cent, will be purchased by Commodity Credit Corporation at the support price less previously scheduled applicable damage discounts and less an additional 1/2 per cent discount for each 1 per cent damage in excess of 8 per cent. Discounts for damage as indicated in the schedule apply up to 8 per cent damage regardless of the cause of the damage. Frost damage shall be determined as defined in the United States Grain Standards."

(Signed) George D. Bradley
Regional Director
Commodity Credit Corporation

Further south, where beans were more mature, and temperatures did not dip so low, damage was relatively light.

The U. S. D. A. October 1 report: Yield per acre—Ohio 21.5; Indiana 20.5; Illinois 21; Michigan 17; Minnesota 12; Iowa 18; Missouri 14.5; North Carolina 12.5; Mississippi 12; Arkansas 12; United States 18.5.

Indicated production, thousand bushels—Ohio 25,950; Indiana 30,135; Illinois 71,788; Michigan 3,264; Minnesota 3,792; Iowa 36,306; Missouri 7,830; North Carolina 3,700; Mississippi 3,060; Arkansas 3,336; United States 200,701.

ILLINOIS

Russell S. Davis, Clayton, for western: Too soon to tell just how much killing frost will cut the yield of late seeded beans. Three-fourths of crop near enough maturity to be little damaged. Yield comparable with last year. Inadequate farm storage unless mills take half of crop.

Frank S. Garwood, Stonington, for south central: Yields lower than estimated earlier because of killing frost, below 1941 on average, but seventy-five percent of crop mature. Early planting will grade No. 2. Farmers have more storage than ever before, but not enough. Estimated 20-25 percent to be stored on farm. Crop very uneven. Some outstanding fields, many very poor.

J. E. Johnson, Champaign, for east central: Seventy percent matured before killing

frost. Quality impaired only on plantings after June 10, with solid drillings particularly. Rowed beans solution of frost damage in large way. Small acreage of Richland beans harvested with yields 22 to 32 bu. Quality good. Early planted Illini and Dunfield just starting. Yields of good fields reported 35 bu. Appears storage will be worked out in satisfactory manner. Grain points have steel bins and many have erected concrete storage. Farmers also have made arrangements in many instances to store. Anticipate much difficulty in grading frost damaged beans.

J. C. Hackleman, Professor Crops Extension, Urbana, for central and north central: Seventy-five percent of crop safe. Beans in north-central, particularly due east of Davenport, more seriously damaged than anticipated. This largely due to large acreage of Chief. Majority of fields will come through with fair quality of beans with reasonably good Indian summer weather for next two or three weeks. Immature beans knocked down so completely with freeze that wet weather would destroy practically all of them. Beans now harvested grade No. 2 with 11 to 13 percent moisture. Yield equal if not better than earlier estimates. Probably 25 percent will be stored on farm, with some areas having problem to solve in way of storage.

IOWA

Howard L. Roach, Plainfield, for northeast: Seventy-five percent of crop matured before first killing frost, with 25 percent

damage to yield and quality. Many will grade No. 3, some sample. Believe farmers have adequate storage.

Charles R. Weber, Agent U.S.D.A. Bureau Plant Industry, Ames: Seventy-five percent matured before killing frost with probably 10 to 15 percent injury to yield. Many beans on market will have greenish cast. With weather as excellent as in past week, beans drying rapidly and majority will grade No. 2. With good fall weather to permit harvest to fullest extent, we have probably not lost any more percentage in yield from early frost than in fall of 1941 due to exceptionally poor harvesting conditions. Most farmers have adequate storage; at least none are perturbed about situation, with necessity for 50 percent to be stored on farm. Storage facilities other than farm storage more critical.

Leslie M. Carl, Federal Statistician, Des Moines: Frosts and heavy freezes between Sept. 23 and 28 severely damaged Iowa crop, particularly in northern part of state. Still too early to make accurate appraisal. October first production estimate of 36,306,000 bushels is best possible appraisal of present situation. As of Sept. 1, 2,017,000 acres to be combined or threshed for grain indicated since freeze some of this acreage has been or will be cut for hay, pastured or plowed under. Iowa still has by far largest soybean crop on record but more than 7 million bushels or 16 percent below earlier prospects.

(Continued on page 10)

* * * *

IOWA STORAGE NEEDED

By R. C. BENTLEY

Iowa State College Economist, from Article in October Iowa Farm Economist

STORAGE space for at least 21 million bushels of soybeans must be provided by Iowa farmers this fall to fully preserve the oil crop produced this summer. With an estimated 2 1/2 times as large a production of beans in Iowa as last year and with the storage facilities already taxed to capacity with wheat, oats, corn and beans, there is no alternative.

Iowa's estimated production of soybeans this fall is 43,366,00 bushels compared with 16,608,000 bushels last year and a ten year average (1930-39) of 3,812,000 bushels.

Storage to Be Taxed to Capacity

Results of a A.A.A. survey of available steel bin storage completed in August showed approximately 16 million bushels space available for beans this fall. This available space may vary depending on the amount of sealed corn delivered this fall and the transportation facilities available for moving feed wheat into steel bins located in the heavy feeding areas of the state. Another factor limiting the amount of beans which may be stored in steel bins is the moisture content of the beans. Only beans dry enough (13 1/2% moisture) to store safely will be stored in steel bins.

Available storage space at terminal markets in Iowa and neighboring river markets is practically nil. Weekly checks of storage

at the river markets show that these markets are full of wheat, corn and oats.

Available storage space at country elevators for soybeans will not exceed 4 million bushels according to present estimates. Many of the country elevators prefer corn storage to wheat or bean storage and especially so if the beans should be slightly high in moisture content this fall.

Available storage space at the Iowa soybean processing plants at harvest time is not likely to exceed 2 million bushels. The total storage capacity of Iowa processing plants is less than 5 million bushels, with upwards of 3 million bushels carry over on October 1, 1942.

Processing Plants Will Be Taxed to Limit

The available processing plants within Iowa makes the storage situation still more acute. The latest estimates for the thirteen processing plants within the state show a total annual crushing capacity of just under 10 million bushels. If we add to this volume those plants immediately to the north, west, and south of Iowa, it brings the total to 12 million bushels.

The above figures indicate that less than one-third of Iowa's beans available for crushing may possibly be processed locally. This means that the other two-thirds will have to be stored on Iowa farms until outside plants are able to handle them. Unless processing plants to the extreme west and south are made available early this fall, Iowa farms must provide 21 million bushels of storage space for beans.

Commodity Contracts

COMMODITY Credit Corporation during the past month has announced contracts to be entered into with bean crushers and also with country elevators as a part of an overall program to facilitate production of vegetable oils from the large 1942 oilseed crops, to support soybean prices to farmers, and to preserve price ceilings. Previously contracts to refiners had been offered.

Previously the allowance to the elevator for the handling of soybeans was 3c in and 1/2c out making a total of 3 1/2c a bushel. This allowance has been raised and the elevator will now receive 4 1/4c per bushel for handling and shipping.

Processor Contracts

Contracts to processors specify that in the case of plants which cannot operate without loss under ceiling prices for oil and minimum prices for meal, Commodity Credit Corporation agrees to buy from the processor all beans except those to be used for the manufacture of products other than crude soybean oil and meal. Those beans will be resold to the processor at "net processor value," with the deduction of a stipulated margin of from 22 cents to 29 cents per bushel depending upon size and type of plant.

In either case the processor agrees to buy soybeans of U. S. Grade No. 4 or better either directly from producers at not less than support prices minus applicable discounts, or from country elevators on the same basis, plus elevator handling charges of not less than 4 1/4 cents per bushel. The

support prices at producers' normal delivery points range from \$1.60 per bushel for green and yellow varieties to \$1.40 per bushel for brown and black varieties with low oil content. Specified discounts are to be applied to soybeans grading lower than U. S. Grade No. 2, as follows:

Test weight — 1/2 cent per bushel for each pound or fraction thereof under 54 pounds.

Moisture — 3/10 of 1 cent per bushel for each 1/10 percent moisture in excess of 14 percent.

Splits — 1/4 cent per bushel for each 5 percent or fraction thereof in excess of 15 percent.

Damage — 1 cent per bushel for each 1 percent or fraction thereof in excess of 3 percent, but not in excess of 5 percent, plus 2 cents for each 1 percent or fraction thereof in excess of 5 percent.

Foreign material other than dockage — 1 cent per bushel for each 1 percent in excess of 2 percent rounded to the nearest percent.

Other colors than yellow and green — 1 cent per bushel for each even percent in excess of 3 percent.

Dockage — Deduct from gross weight all dockage entered on inspection certificate.

Eligible Soybeans for Loans

Soybeans eligible for loans must be stored on farms and shall be any class grading No. 3 or better with respect to factors other than moisture and having a moisture content not in excess of 14 percent, which were produced in 1942, the beneficial interest to which is and always has been with the eligible producer, except that soybeans grad-

ing weevily or which are musty, sour, heating, or have any objectionable foreign odor, shall not be eligible soybeans for loan. Loans will be made to eligible producers on soybeans stored on the farm in all areas approved by the Agricultural Adjustment Agency.

Basic Loan Values

The basic loan values for No. 1 and No. 2 soybeans shall be in accordance with the following schedules:

Soybeans of classes I and II (green and yellow):

(a) \$1.60 per bushel for high oil content.

(b) \$1.50 per bushel for low oil content.

Soybeans of classes III, IV, and V (brown, black and mixed):

(a) \$1.50 per bushel for high oil content.

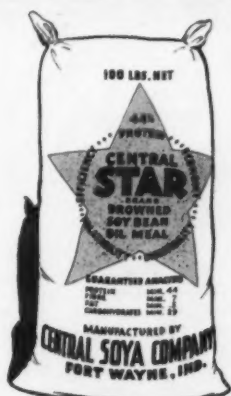
(b) \$1.40 per bushel for low oil content.

Soybeans of any class grading No. 3 with respect to factors other than moisture and having not more than 14 percent moisture shall be discounted 3 cents per bushel below the basic loan value for No. 1 or No. 2.

Recently the loan offer has been increased to \$1.67 per bushel for delivery on or after June 30 and the purchase price has been amended to increase one cent on the first of each month from January to June. The same discounts for beans of lower oil content or grade will be made as in the original plan.

Purpose of the new plan is to encourage farmers to hold beans in storage for a longer than usual period.

Eligible soybeans for purchase shall be soybeans of all classes grading No. 4 or better produced in 1942. Soybeans containing stones and/or cinders or soybeans grading weevily, musty, sour, heating, or hot, or which have any commercially objectionable foreign odor, shall not be eligible for purchase.



**CENTRAL
STAR BRAND
44%
SOYBEAN
OIL MEAL**

MORE . . . More soybeans — more eggs, more milk, more meat! Soybean oil meal, and soybean oil are now a matter of defense production and we must work accordingly. A big job ahead for the grower and feeder, for the elevator, processor, feed manufacturer — a vital job that must be done well.

Soybeans hold a double value for the grower-feeder — a good cash crop, and a major source of protein for feeds.

Growers and feeders in the areas served by our plants will find us prepared — to handle their increased acreage of beans, and to furnish them with properly balanced feeds for increasing growth and production in livestock and poultry.



**CENTRAL
BRAND
41%
SOYBEAN
OIL MEAL**

A Basic Source of Vegetable Protein

in Master Mix Feeds and Concentrates

CENTRAL SOYA CO., INC., and McMILLEN FEED MILLS

MILLS: DECATUR, IND., and GIBSON CITY, ILL.

GENERAL OFFICES, FORT WAYNE, IND.

October Crop Report

(Continued from page 3)
INDIANA

Peter J. Lenx, Indiana Agricultural Conservation Committee, Indianapolis: Seventy-five percent of crop matured before killing frost, with 2 percent damage to yield and less than 1 percent to quality. Beans will grade No. 2 or better on 95 percent of crop. Yield up 20 percent above earlier estimates. Sixty percent of crop will have to be stored on farm at harvest time, with necessity to provide temporary storage.

K. E. Beeson, Extension Agronomist, Lafayette: Late planted soybeans (late June or early July in northern Indiana) damaged by recent frosts. Immature beans will be green tinted, or if too immature, badly shriveled or will spoil. Right now, soys excellent as to grade. Harvest under way in good shape Oct. 3, with 20 bu. average prospect for state. Farmers report shortage of storage space.

OHIO

G. G. McIlroy, Irwin, Ohio, for central: Eighty percent matured before killing frost, with damage to yield not over 10 percent. Loss by frost may be more than offset by ability to commence combining 3 or 4 weeks earlier than last year. Beans will grade mostly No. 2 and 3, with yield equal to

earlier estimates. Storage problem not generally serious in this territory, with need for 10 to 15 percent to be stored on farm.

W. G. Weigle, Van Wert, for northwest: Seventy-five to 80 percent of crop matured before first killing frost with damage to 5 to 10 percent of total yield. Yield higher than earlier estimates. First fields making 35-40 bu. per acre. 47,000 acres of soybeans in Van Wert County, estimated average yield 30 bu. Farm storage inadequate, but government bins located locally with improved farm storage will get them well under cover, with probably 50 percent stored on farms.

D. F. Beard, Extension Agronomist, Columbus: Sixty-five to 75 percent of crop matured before killing frost, with some fields very immature and yield cut considerably in these cases. Average frost damage $\frac{1}{2}$ bu. as state average, 1 bu. per acre in northern Ohio. State average 3 bu. above normal, with high individual yields reported. Doubtful if farm storage adequate. Some not of proper type. Two-thirds of crop may have to be stored on farm.

D. G. Wing, Mechanicsburg, for central: Started combining week of Oct. 4, with prospective yield above normal. 275 acres on our farms look like 30 bu. average or better. Only very few fields damaged by early frost, with beans to grade No. 2 or better. However northern Ohio badly damaged from frost.

MISSOURI

J. Ross Fleetwood, Extension Specialist Field Crops, Columbia: Ninety percent of crop matured before killing frost, with quality materially reduced on 10 percent caught by frost and total yield cut $2\frac{1}{2}$ percent. Beans will grade good. Yield about same as August indications. Farmers have adequate storage for the most part.

H. Baxter Hall, Missouri Agricultural Conservation Committee, Columbia: Eighty percent matured before killing frost, with 5 percent damage to yield and slight damage to quality. Beans will grade No. 3 or better. Ten percent of crop harvested, with yield above normal and above earlier estimates. Farmers have inadequate storage. Twenty-five percent of crop will have to be stored on farm.

MINNESOTA

W. G. Green, Lakefield, Minn., for southwest: Five percent of crop mature before killing frost, with 75 percent damage to yield and 80 percent to quality. Beans will grade sample. Bean crop tough proposition. All beans frozen and outcome depends on weather conditions.

WISCONSIN

George Briggs, Extension Agronomist, Madison: Heavy freeze caught many fields just turning yellow, which means many immature. Fields planted late May or early June of recommended varieties coming through 80 percent or better. With late planting and use of late varieties crop yields and quality greatly damaged. Yields may be influenced 20 to 50 percent. If next month's weather not good, many green, high moisture soys will cause great storage problem. Small percentage or none of crop to be stored on farm.

Walter F. Katterhenry Chairman Agricultural Conservation Committee, Madison: Twenty-five percent of crop matured before

first killing frost, with range of 40 to 60 percent damage, and drop of more than 1 grade in quality, most below No. 2. Crop yield 50 percent normal. Farmers have adequate storage with 80 percent to be stored on farm.

NEW YORK

F. P. Bussell, Cornell University, Ithaca: No killing frosts until Sept. 29. Beans well podded but because of wet August and September slow in maturing. Dry weather needed to get beans hardened off and ready for harvest. Excellent yield but quality depends largely on weather conditions up to harvest. Eighty percent of crop mature at frost.

NEBRASKA

Fred B. Rengler, Nebraska AAA Committee, Lincoln: Eighty-five percent of crop matured before killing frost, with 10 percent damage to yield and 5 percent to quality. Bulk of beans to grade No. 2 provided wet harvest conditions not encountered. Yield 110 percent of normal and in line with earlier estimates. Farmers have inadequate storage but AAA making every effort to provide storage through portable wooden bins. About 90 percent of beans planted will be harvested for grain. Balance 10 percent harvest for hay. Will be no abandonment. Harvest in full swing in 10 days (Oct. 1).

KANSAS

E. A. Cleavinger, extension agronomist, Manhattan: First frost Sept. 28 damaged yield 20 percent, quality 30 percent. Even with frost damage yield will be normal, but 20 percent under earlier estimates. Beans will grade No. 2 or less. Elevators able to handle beans from farms not having adequate storage.

Kansas Crop Report: Severe frost injury occurred to late soybeans in east central and northeastern areas, week of Sept. 29.

NORTH DAKOTA

William J. Leary, Extension Agronomist, Fargo: Less than 15 percent crop mature at killing frost, with 50 percent damage to yield and 75 percent to quality. Only most mature will grade satisfactorily. Would expect farmers to have adequate storage since acreages are small and crop will be reduced.

SOUTH DAKOTA

Evan V. Jones, Agricultural Statistician, Sioux Falls: My personal opinion that total planted acreage in South Dakota 19,000 acres. Production of beans will be very small. Crop was very late due to cool season, and heavy killing frost Sept. 25 stopped all growth. Beans will be harvested only in extreme east and southeastern counties. Quality there quite poor.

NEW JERSEY

H. R. Cox, Extension Agronomist, New Brunswick: So far frosts have scorched tops of plants only. Hard frost in near future would damage many fields, since crop greener and more vegetative than usual this time of year.

ARKANSAS

Jacob Hartz, Stuttgart: Ninety to 95 percent crop matured before first killing frost, which damaged yield 5 to 10 percent and quality very little. Have seen only few samples graded, and these No. 3 or 4. Yield slightly lower than earlier estimates. Farmers have inadequate storage with 50 or more percent of crop having to be stored on farm. Very few soybeans harvested. Some starting

ALL OUT FOR VICTORY



WITH DANNEN'S SOYBEAN OIL MEAL

Uncle Sam needs soybean oil and American farmers are raising more soybeans to furnish this oil.

That means more DANNEN'S SOYBEAN OIL MEAL will be available for production of more meat, milk, and eggs.

You can cooperate by using D'annen's SOYBEAN OIL MEAL (expeller type) in your feed rations.



For LIVESTOCK AND POULTRY

DANNEN
GRAIN & MILLING CO.
ST. JOSEPH, MO.

with Macoupin variety (earliest yellow) this week.

MARYLAND

Ailin O. Kuhn, Assistant Extension Agronomist, College Park: Ninety-five percent of crop matured before killing frost, with very little damage to yield or quality. Early estimates were crop would not be as heavy as normal, but later estimates for slightly better than normal. Ninety percent or more of beans will have to be stored on farm. Storage adequate.

MISSISSIPPI

D. L. Edson, District Extension Agent, Greenwood, for Delta area: No killing frost yet except in low places. Seventy-five percent beans will grade 1 and 2. Yield 90 percent normal, with less than 10 percent to be stored on farms.

KENTUCKY

J. E. McClure, County Agent, Daviess County: No killing frost yet. Beans 45 percent harvested, will grade mostly No. 2. Yield sharply higher than earlier estimates. Storage short. Practically no farmers have bulk storage space. Bags short for that type of storage. Local elevators not large enough. Local mills could have handled crop of normal grain buying area, but beans being delivered from many new areas. If this keeps up local storage will be full with 40 percent of county crop still in farmers' hands.

— s b d —

POULTRY FEEDING

(Continued from page 2)

animal products. In practice there seems to be no problem in correcting these mineral deficiencies in simple rations consisting

largely of corn and soybean oil meal. Such rations are deficient in phosphorous, calcium, salt and manganese. So long as the phosphorous content of the ration is .80 to 1.0 per cent of the ration and the calcium is about 1.5 to 2 times the phosphorous there seems to be no problem. When the ration contains one-half per cent of a salt mixture made up of 95 pounds of salt and 5 pounds of manganese sulphate, the requirements for these substances seem to be met. It should be noted that these mineral corrections are for the ration, not just the mash, unless the ration is an all-mash ration. In grain and mash rations for layers and for growing chickens after 6 or 8 weeks, it is usually assumed that half grain and half mash will be consumed although this assumption is not exactly correct in actual practice, yet it appears to be safe enough for calculating mineral corrections.

There has been some work at the Colorado Experiment Station to suggest that soybean oil meal in large quantities promotes goiter in fowls. The thyroids were normal when iodine was added. In our work at Purdue with rations high in soybean oil meal we have not observed any adverse effects of this kind.

Elsewhere you have been given formulas for poultry rations which involve the use of soybean oil meal. We shall not therefore go into formulas at this time. We would, however, emphasize that in substituting soybean oil meal for other protein concentrates in a ration that other adjustments besides protein must be made or the results may be disappointing. As a safety measure it is better to use a definite formula which has been fed successfully for the purpose intended rather than attempt to theorize from tabular matter.

In conclusion, soybean oil meal can be used in liberal quantities in rations for poultry as a protein supplement. It can be used in relatively simple rations with corn, alfalfa leaf meal, simple mineral corrections, and fish oil for satisfactory egg production by fowls in confinement. For good hatchability it is necessary to use some meat products, milk products, pasturage or other sources of the vitamin B complex factors.

For starting young chicks during the first 6 weeks soybean oil meal can be used as the protein supplement, in rations high in corn, but mineral and vitamin adjustments must be made.

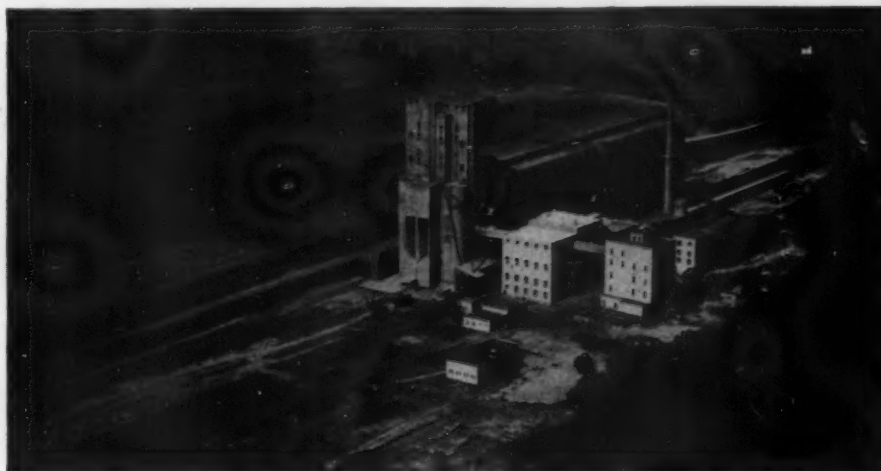
We would caution against too radical a change in feed formulas and suggest that rations of known performance be used as the basis for practice. Soybean oil meal properly processed supplies high quality protein for supplementing corn in poultry rations but it and corn are deficient in several mineral and vitamin factors, but all of these can be corrected by other common products.

— s b d —

A normal crop of soybeans consists of about 400 to 700 pounds of root material per acre and about 4,500 pounds of tops on a dry weight basis. Soybeans cut for hay remove more organic matter from the soil than they return. Soybeans combined for grain return three or four times as much organic matter as they remove.

— s b d —

Soybeans show more tolerance than other legumes to acid soils. Alfalfa and sweet clover have the least tolerance of any legumes for soil acidity. Wheat and oats are little affected by acid soils, but barley needs lime to produce well.



A. D. M. Soybean Processing Plant . . Located at Decatur, Illinois.

WHAT IS GOOD-WILL?

Good-Will is the disposition of a satisfied customer to return to the place where he has been well treated.

The Archer and Daniels families have been engaged in the Oil Milling business for a century (1840-1940), and the good-will which has been built up during those hundred years is jealously guarded in every transaction.

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SOYBEANS and People

Soybeans in Victory Dinner

ILLINOIS, the leading soybean growing state, is giving real attention to the use of soybeans as food. A booklet, "Home Budgets for Victory," published by the state and prepared by Christine Ryman Pensinger, chief state home economist, features the soybean as an economy food.

Mrs. Pensinger calls the soybean "at least a partial solution to all of these questions" of dietary deficiency raised by the war. Quoting the booklet: "Vegetable soybeans as a source of the complete protein which both builds and repairs body tissue, can substitute for the far more expensive products of meat, eggs, and milk. Soybeans also rank with fruits, vegetables, and dairy and meat products as a protective food."

"Thus far, the chief use of the soybean as a food has been in the form of flour. In this form it can be used in place of certain amounts of wheat flour in many baked products both commercially and in the home. The soybean flour and grits can also be used as meat extenders."

Mrs. Pensinger writes, concerning the work with soybeans by the Illinois State Bureau of Home Economics: "We are very much interested in the use of soybeans, particularly since we are going to be rationed on meat. They have a complete protein the same as meat, and we believe they can be used as an excellent meat equivalent. We are beginning to do more research work now on the use of soybean grits and flour. We are, of course, using large quantities of each in our state institutions, but when we are rationed on meat it will be necessary to use more of them than ever before."

Earlier in the year Governor Dwight H. Green of Illinois was host at a "Victory Dinner" featuring a nutritious low cost menu which included a soybean meat loaf in which soybean flour and grits were substituted for 25 per cent of the meat. The Governor's "Victory Dinner" is pictured on this page.

The recipe for the soybean loaf follows:

SOYBEAN LOAF

- 1 pound ground lean beef
- 1 slice ground salt pork
- 1/4 pound soybean grits
- 1/4 cup bread crumbs
- 2 tablespoons soybean flour
- 2 tablespoons chopped onion
- 1 tablespoon chopped green pepper
- 2 teaspoons salt
- 1/4 teaspoon pepper
- 1/2 teaspoon celery salt
- 1 cup milk
- 1 cup canned tomatoes

— s b d —

BEAN MEAL IN EMERGENCY

(Continued from page 5)

A processor can make excellent, good, or just fair soybean oil meal regardless of the method of processing used. It all depends upon the care exercised during processing.

Recently, I had the privilege of seeing some uncompleted results of feeding tests with several different soybean oil meals all made from the same lot of soybeans, but with slight variations in processing. There was a decided difference in the results on both pigs and chickens. No feeder would pay the same price for No. 4 mixed corn as for No. 2 yellow to feed to livestock. Yet there was as much or more difference in the results from these different lots of meal than

would be obtained when feeding these different grades of corn. "Properly processed" is a term frequently applied to soybean oil meal by research workers in nutrition. That is not just an alliterative phrase. It really means something to the feeder.

I am not a prophet — just an ordinary student like thousands of others, trying to meet the problems of tomorrow. If I can visualize the situation clearly, I see a marvelous opportunity for the production of soybeans as a result of this war. If the situation is properly handled, much of the advantage gained because of war conditions will become permanent. Emergencies stimulate research, and research establishes facts. New uses for soybean oil, soybean oil meal, and soy flour are being developed very rapidly. If these new uses and recom-

mendations are based upon facts instead of enthusiasm and propaganda, they will continue, and the industry will be on a firm foundation. Soybean oil, soybean oil meal, and soy flour will become a permanent part of the diet for man and beast.

— s b d —

FLUMERFELT TO CENTRAL SOYA

Walter E. Flumerfelt, general manager of the Soy Bean Processing Company of Waterloo, Iowa, since its organization six years ago, recently accepted a position with the Central Soya Co., at Fort Wayne, Ind., as an executive in charge of certain soybean developments.

Flumerfelt is a member of the board of directors of the National Soybean Processors Association, and a member of the soybean crushers industry advisory committee of the war production board. He was chairman of the Waterloo & Cedar Falls Traffic Association for three years while at Waterloo.

Governor Green's Victory Dinner: Chicken Noodle Soup, Soybean Meat Loaf, Stuffed Baked Potatoes, Green Lima Beans, Corn Bread and Margarine, Lemon Milk Sherbet.

— Courtesy Illinois State Bureau of Home Economics



Storage Tips

If a hay mow is used for soybean storage, beans cannot be piled as high as hay because they are 10 times heavier than loose hay, warns D. G. Carter, University of Illinois agricultural engineer.

Carter says walls built with 2 by 4 inch studs 12 inches apart will hold soybeans 7 feet deep. However, the grain can be only 5 feet deep when studs are 2 feet apart. Two by 6 inch studs 12 inches apart will permit piling of grain 12 feet deep, but only 7 feet deep when studs are spaced 2 feet apart, provided the floor is strong enough.

If damp beans are kept in a bin at temperatures lower than 50 degrees they are not likely to heat and spoil before spring. Arranging the beans on a perforated floor or laying ventilating flues on the floor so that air can be forced up through the beans is the most desirable method of preventing damage, according to G. R. Shier, Ohio University agricultural engineer. This requires the use of equipment for blowing air and for

a bin containing 300 or 400 bushels a silo blower or grain blower may furnish all the air required.

Shier also has designed an inexpensive homemade plywood blower operated with a quarter-horsepower motor or small gasoline engine for use in bins of high moisture beans. This design, which is extension blue print number 9402, may be obtained from Ohio county agents, or from extension service, Ohio State University, Columbus.

Beans in storage lose their ability to sprout mainly due to wrong temperature and moisture conditions. One lot of soybean seeds with 8 to 9 percent moisture held at 35° F. for 8 years, suffered no loss in sprouting ability, whereas another batch, with 13 to 14 percent moisture, held at 70° F. showed no germination after 20 months, in U. S. Department of Agriculture tests.

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STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933

Of The Soybean Digest, published monthly at Hudson, Iowa, for October 1, 1942.
State of Iowa, County of Black Hawk, ss.
Before me, a notary public in and for the

State and county aforesaid, personally appeared Geo. M. Strayer, who, having been duly sworn according to law, deposes and says that he is the editor of The Soybean Digest and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, Geo. M. Strayer, Hudson, Iowa.
Editor, Geo. M. Strayer, Hudson, Iowa.
Managing Editor, Kent Pellett, Hudson, Iowa.
Business Manager, Geo. M. Strayer, Hudson, Iowa.

2. That the owner is: American Soybean Association, Hudson, Iowa.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

GEORGE M. STRAYER.

Sworn to and subscribed before me this 2nd day of October, 1942

A. M. DONNAN, Notary Public.
(My commission expires July 4, 1945.)

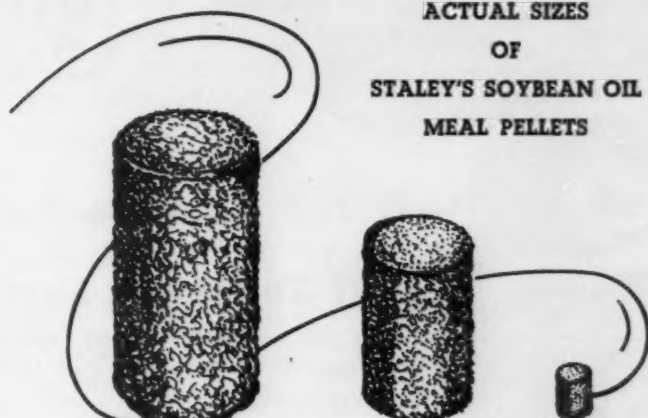
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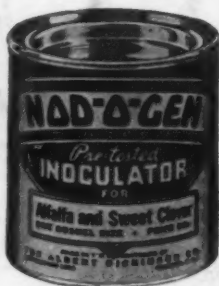
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